The water supply picture is grim

Two severely dry winters in a row have had a drastic impact on water systems throughout California, including the supply for citizens of the East Bay. There has been very little rain locally, and more important, there has been very little snowfall in the Sierra Nevada which is the source of the water for EBMUD customers.

The current winter is even drier than last year, which was the third driest in California records. In early February there was less than 10 inches of snow on the ground in the mountains above the Mokelumne River where normally there would be more than five feet. And, for the first time in history, we are having two dry years back to back; so there is little carryover supply in our reservoirs.

The result can be starkly seen at Pardee Reservoir on the Mokelumne, the principal storage facility for EBMUD. Last year at this time the reservoir was about 85 percent full. It is now only 30 percent full. The outlet tower is out of the water and looms more than a hundred feet above the dry bank of the reservoir. The desolate shoreline of cracked mud has not been exposed since the reservoir was filled for the first time in the early 1930's.

What does this mean in terms of water supply? In early February this year, Pardee Reservoir held about 21 billion gallons of water. Its maximum capacity is 68.4 billion gallons. The water level was 90 feet below the top of the spillway.

The average rate of consumption by all EBMUD customers during 1976 was 222 million gallons each day, the highest consumption rate in EBMUD's history, and about seven percent higher than the previous year. At that rate of water use, there is now less than 90 days of water left in Pardee Reservoir.

Five large reservoirs in the East Bay hills also store the mountain water from the Mokelumne. These stand-by reservoirs currently hold about 35.5 billion gallons of water — another 160 days of water at last year's rate.

Although there will be some additional water flowing into Pardee from the little melting snow that is there, it has become painfully clear that EBMUD customers cannot rely on water currently available to supply them in the amounts that they have been using. In order to stretch the supplies so that they will not be exhausted this year — a situation that must be avoided — it is necessary for an overall reduction of water use of at least 25 percent.

If East Bay citizens cut back water use by this amount, then EBMUD water reserves will have months added to their supply. If not, then we are all in grave trouble.

Because we cannot rely on the weather to provide for us, either this year or next, EBMUD must require its customers to conserve water. If the steps outlined in this newsletter are effective for reducing water consumption to a safe level with regard to our dwindling supplies, then further restrictions may not be needed. On the other hand, if the results are not favorable, additional measures will be imposed.

Although we continue to hope for the best, we cannot wait any longer to require conservation. The water we save now is all we will have for the rest of the year!

Unanimous cooperation is necessary — with it we will survive the drought without serious disruption. Without that cooperation, we face the very real possibility of running out.

Credit to Richmond Independent Bob Forsburg

The allotment program - How much water you can use

To stretch the amount of water we do have on hand, EBMUD has adopted an allotment program for all customers. With everyone's cooperation, this program will reduce water consumption by at least 25 percent, with as much rain as we had last year, and we should be able to get through the summer.

The program is designed to be as fair as possible to everyone, provide sufficient water for basic needs, a little to keep gardens alive, and avoid putting people out of work. *All homes will receive a basic alltoment of 280 gallons per day* — the equivalent of approximately 2200 cubic feet (22 billing units) of water per typical two-month billing period, or about 16,500 gallons each 60 days. This figure was arrived at by reducing the amount of water used indoors in a typical home by 25 percent, and cutting the average outdoor use by 50 percent.

If possible, you are encouraged to use less than the allotment throughout the year. For those who exceed the allotment, there could be excess use charges which increase rapidly (see story on penalties). Other penalties are possible, such as flow restrictors and discontinuation of service.

The allotment is based on average water use throughout the billing period, recognizing that, for example, on wash day you may have to use more, but that you should make up for it by using less the rest of the time.

Apartments and Non-Domestic Customers

The same reductions in consumption are required of most commercial customers and public agencies — a 25 percent cut in interior water use and a 50 percent reduction for landscape irrigation, including parks, golf courses, cemeteries and freeway landscaping.

Reductions for apartments of five or more units will be 30 percent, based on the same percentage reductions of interior and exterior uses.

Industrial customers are also required to cut back 50 percent in landscape irrigation, and 25 percent in most interior uses. There is provision for a cut of at least 10 percent in the use of "process water", which is defined as water used to manufacture, alter, convert, clean, heat, or cool a product, or ghe equipment used for such purpose. The reason for the small cut in this category, which also includes water used in laundries and approved car wash facilities, is to minimize the impact of the allotment program on the economy of the East Bay, and to avoid adding to the already high unemployment rate in the area.

Allotments for apartments and for all non-domestic customers will be based on consumption for a similar period last year. For example, a store with no landscaping which used 400 gallons per day in March of last year will be allotted 300 gallons per day, or 25 percent less, this year; and cities will be allowed only half as much water for irrigating city parks and other landscaping as they used for the same month in 1976.

Excess use charges for apartments and all non-domestic customers will be more severe than those for homes.

Residential Allotment Excess Use Charges

Water Use		
Gallons per Day	**Units per Billing Period**	**Excess Use Charge**
0 - 125	0 - 10	None
125 - 280	11 - 22	None
280 - 375	23 - 30	1/2 times Unit Rate
375 - 500	31 - 40	1 times Unit Rate
500 - 625	41 - 50	2 times Unit Rate
625 - 750	51 - 60	3times Unit Rate
750 - 875	61 - 70	5 times Unit Rate
875 - Up	71 - Up	10 times Unit Rate

Allotment Schedule For Industrial - Commercial - Public Agencies Multiple Dwelling Units

Excess Use Charges

When Units of Water Used Exceed Allotment By:		Units Used in Excess of Allotment Will Be Billed At Regular Rate Plus
0%		None
10%		1/2 times Unit Rate
20%		1 times Unit Rate
30%		2 times Unit Rate
40%		3 times Unit Rate
50%		5 times unit Rate
60%		10 times Unit Rate

If water is used in excess of allotment, service will also be subject to flow restriction or discontinuance.

What if we don't save water

It's your water; if you don't save it now you won't have it later.

Most residents of the Utility District will probably respond as most Americans have always done in a time of crisis: They will do what has to be done, even if it is less than pleasant.

The conservation of water is, after all, a matter of individual necessity for each person in the East Bay. Customers must save water; the Utility District as an organization can't do it for them, but it can — and will — do everything in its power to be sure that people do what is required, and that a few people do not violate the rules that most people follow.

Excess use charges have not yet been adopted but a table with charges for various levels of water consumption is shown below. Penalties have been established for clear abuse of restrictions on methods of use. First, a warning notice will be sent to any persons found to be violating usage rules. If violations continue, a flow restrictor will be installed. This device reduces the flow into a customer's water line to the point where conservation is enforced. The restrictor will make it difficult or nearly impossible to properly operate dishwashers, clothes washers, sprinklers and many other types of water-consuming appliances and equipment.

If violations coinue, or if the misues of water is particularly flagrant, the water service may be completely stopped. In addition to the inconvenience of going without water for a period of time, the violator will have to pay a substantial reconnection charge when water service is restored.

In addition, the Board of Directors is now studying a rate increase which could reward customers who are particularly good at saving water; for example, those who use less than 125 gallons per family per daym For those customers who use more than that amount, but still use no more than their allotment, there would be some increase.

On the other hand, excess use charges could be applied to customers who have failed to conserve. These could range from 50 percent more for those who used only a little over their allotment to an excess use charge of 10 times the regular rate for those who used an excessive amount of water.

These examples deal with residential customers. Similar excess use charges have been proposed for commercial, industrial and public authority customers who fail to being their consumption down to their allotment level.

A public hearing on the proposed rate increases and excess use charges is scheduled for March 8. Final adoption of the proposals could be approved at that time.

What are the restrictions?

In order to reduce overall water consumption throughout the East Bay Municipal Utility District by 25 percent, a set of mandatory restrictions has been imposed and is now in effect.

In addition to the allocations (see "The Allotment Program — How Much Water You Can Use"), these restrictions and regulations include the following, in abbreviated form:

Domestic Customers

★★ Repair leaks
★★ Reduce garden watering to the minimum needed for plant survival
★★ No excessive watering resulting in flooding or runoff to paved areas or waterways
★★ No vehicle washing by hose or from other outlets
★★ No filling of existing swimming pools with EBMUD water after March 1
★★ No filling of new pools with EBMUD water unless a building permit was issued by March 1 or a contract was made by March 1 and a copy filed with EBMUD by March 15
★★ No washing of driveways or other hard-surfaced areas by hose or other outlet

Non-Residential Customers

Basically the same as above, except:
★★ Car washes and other vehicle washing permitted at commercial or fleet facilities at fixed locations using recycling systems
★★ 50 percent reduction in exterior use
★★ No decorative fountains
★★ Restaurants may serve water only on request
★★ Only emergency sewer flushing with EBMUD water

Every effort has been made to provide an equitable conservation program; however, we recognize that any program may result in inequities. The resolution which established the allocations and restrictions also included provisions for exceptions.

The grounds for granting exceptions include unnecessary and undue hardship such as loss of production or jobs, and emergency conditions affecting health, sanitation, fire protection or safety.

The resolution aslo calls for regular reports on the status of EBMUD's water supply and the success of the conservation program, as well as public hearings on the allotments, restrictions and other aspects of the program approximately every 60 days.

The resolution states the regulations and restrictions will remain in effect until the drought ends and EBMUD's water supply has been augmented or replenished.

The restrictions listed above are in abbreviated form. Prior to adoption, the full text of the resolution establishing the restrictions was distributed to the press and those who attended the EBMUD Board of Directors meeting of February 8.

Copies of the full resolution are available for review at the EBMUD business offices listed under "Water Leaks" in this newsletter.

TYPE OF CUSTOMER	REDUCTION GOAL	ALLOTMENT
HOMES		
Interior	25%	180 gallons per day
Exterior	50%	100 gallons per day
	TOTAL	280 gallons per day
Multiple Dwellings (5 or more units)	30%	70% of previous year
INDUSTRIAL		
Process Water	10%	90% of previous year
Other, Interior	25%	75% of previous year
Other, Exterior	50%	50% of previous year
COMMERCIAL & PUBLIC AGENCY		
Interior	25%	75% of previous year
Exterior	50%	50% of previous year

How to save water

	Normal Use	Conservation	How To Do It
Shower	Water running 25 gallons	**4 gallons**	Wet down, soap up, rinse off
Brushing Teeth	Tap running 5-10 gallons	**1/2 gallon**	Wet brush, rinse briefly
Tub Bath	Full 36 gallons	**10-12 gallons**	Minimal water level
Shaving	Tap running 20 gallons	**1 gallon**	Fill basin and use stopper
Dishwashing	Tap running 30 gallons	**5 gallons**	Wash and rinse in dishpans or sink; reuse water
Automatic Dishwasher	Full cycle 16 gallons	**7 gallons**	Short cycle; minimum water level
Washing Hands	Tap running 2 gallons	**1 gallon**	Fill basin, use stopper
Toilet Flushing	Depends upon tank size 5-7 gallons	**4-6 gallons**	Use tank displacement bottles
Washing Machine	Full cycle, top water level 60 gallons	**27 gallons**	Short cycle, minimal water level
Outdoor Watering	Average hose 10 GPM★	**Lowest priority**	Eliminate
Shampoo	At home 12 gallons	**8 gallons**	Soap only once
Car Wash	10 GPM★	**1-4 gallons**	Wash car from a bucket

Fixing your leaks

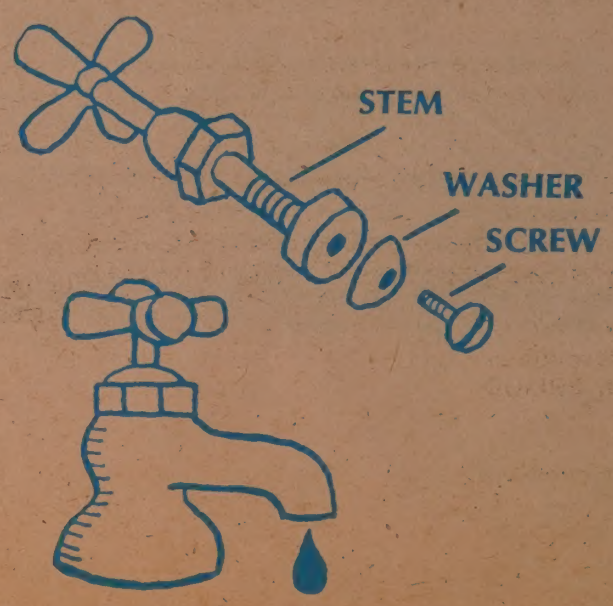
Lots of water can be lost through small leaks in plumbing or fixtures. Check all water-using fixtures regularly for leaks or potential leaks, and make the necessary repairs.

To hunt for leaks that otherwise might go undetected, a good way to begin is by firmly turning off each tap inside and outside the house. If a faucet still drips, it probably has a worn washer which you will have to replace. Don't forget the faucets on the outside of the house — frequently they are left dripping after use, and this could go unnoticed for a long time. Removing the hose from the tap makes it easier to see if water is leaking.

With everything shut off, including fixed faucets, washing machines and other appliances, sprinklers and toilets, no water should be flowing through the water meter into the house. To check this, go outside to the meter-box, lift the cover and flip open the lid on the meter. An array of dials will peer out of the meter at you. Look for the testing dial which either is labeled "one foot" or has no marking at all. Some meters look like speedometers, and the only needle on the dial is for testing.

Note where the test needle points, then check it ten or fifteen minutes later. If the needle is in the same spot, then no water is flowing and your house is leak-free. On the other hand, if the needle has moved at all, it means you will have to go through your house again to track down the running water.

★ Every faucet in the house is potentially a water waster. If water still drips after you have turned the faucet off firmly, take it apart as shown in the diagram and replace the worn washer with a new one exactly the same size and style. It is important to get an exact replacement.



The washer should fit easily inside the "cup" and spread out to the edges when screwed down. If it still drips you might have a more difficult problem which could be better handled by a plumber. If you think you still have a leak after you have checked all possible pipes, fixtures, and taps, call an EBMUD busniess office. We can give you advice on what to do about it and, if necessary, send an inspector to help you locate the leak.

★ The biggest culpirt for losing water in the house is the toilet. In toilet leaks, water either is flowing into the overflow pipe because the water level is too high, or the float valve is worn or it is leaking into the toilet bowl because of a faulty plunger ball.

Overflow leaks can be found by sprinkling talcum powder on the water surface in the tank and seeing if it moves into the overflow pipe. This can be fixed by gently bending the float arm down so that the valve shuts off before water spills into the pipe, or by replacing the float valve itself, if it is worn out.

Plunger ball leaks can be found by dropping a little food coloring (or dye tablets available at EBMUD business offices) into the tank and waiting for the color to appear in the toilet bowl. They can be fixed by replacing the worn plunger ball and making sure that the toilet mechanism is in proper alignment and not sticking.

More Conservation Plumbing

★ Insulate hot water piping. This will reduce the amount of water that is needed to flow before it becomes hot, and it will save energy too.

★ If you have a pressure-reducing valve in your plumbing system, you can cut water use by reducing the water pressure. The reducing valve is normally located near the house shut-off valve. To lower the water pressure, first lower the locking nut on top. Adjust the screw counter-clockwise to reduce pressure. Water pressure can be reduced as long as water-using appliances and fixtures continue to operate efficiently.

★ In case of an emergency in the plumbing system, such as when your heater blows out, a pipe bursts, or a fixture breaks, you need to know how to shut off the water to the house so you can keep water loss to a minimum.

Most sinks, washbasins, and toilets have shut off valves below which can cut the water off at that fixture. These same valves also can be adjusted to reduce the water flow.

Water heaters also have a shut-off valve which will cut off the hot water to the house.

Unfortunately, most showers and baths do not have a handy shut-off valve, and shutting off the main house valve is required.

The main house shut-off is generally located where the water service pipe enters the house, sometimes inside and sometimes outside the house.

Check all the shut-offs to make sure that they work, and if you have problems with any of them, particularly with the main house valve, it may be necessary for a plumber to correct the problem.

EBMUD conservation kits

Water conservation kits to help you cut down on your indoor water consumption will be available soon at all of EBMUD's business offices. The kits contain either plastic bottles or toilet tank dams which will cut the water need for each flush, flow restrictors for showerheads, and dye tablets for checking for leaks in toilets. The kits also contain detailed instructions for all of these devices.

The toilet tank dams and the plastic bottles work by holding back a portion of the water that would otherwise be flushed away.

The EBMUD bottles displace one quart of water for each one that is used. Any bottle can do the job, but make sure that they are weighted with enough small rocks so they don't shift around in the tank; do not use sand. Also make sure they do not displace so much water that the toilet requires extra flushing to do the job. Bottle caps are not necessary because the bottles stay upright, and are filled wity the water that is not flushing away.

The toilet dams are semi-rigid plastic rectangles with soft rubber edges. These are bent to wedge firmly in place in the toilet, and they will hold back a portion of the water. The dams might not work with some toilets with sloping sides or with some older models of toilet tanks. Bottles would be more effective to save water for those toilets.

Instructions for the toilet dams come with the kits at EBMUD business offices. Although plastic bottles are being distributed at the business offices also, you don't have to use an "official regulation bottle" — any kind of plastic bottle will do the job.

The showerhead flow restrictors are actually plastic washers that fit inside the showerhead. They reduce the water flow while still giving you plenty of water to get clean. Not every showerhead is designed to accept an insert, but if you have a screw-on showerhead with a flat washer inside it, or if you have a simple "ball-joint" showerhead with a curved washer, you should be able to use the flow restricting insert.

The water conservation kits also contain dye tablets which can help locate leaks in toilet tanks. Most of EBMUD's high bill complaints are traced to faulty toilets — they are the most common place to find water-wasting leaks. Drop the tablets (a harmless vegetable dye) into the tank, and if the color shows up in the toilet bowl without flushing, you have a leak. Repairing leaky toilets is discussed in the section about plumbing leaks.

For your water conservation kit, visit one of EBMUD's business offices listed in this newsletter. Because of the overwhelming, and encouraging, demand for the kits, EBMUD has exhausted its current supply and has had to reorder. A new shipment is expected before the end of February.

How to save water indoors

There are as many ways of saving water as there are of using it. Each time you turn the tap, use an appliance, or flush the toilet, think of a way to use less and do it.

Some conservation methods require a change of habit, and others require a modification of equipment or plumbing both for indoor and outdoor use.

Toilets

★ Many toilets use as much as 5 to 7 gallons per flush. This can be reduced by placing plastic bottles or toilet dams inside the tank, which will be available from EBMUD business offices. Be sure that the bottles do not either interfere with the flushing mechanism or displace so much water that two flushes are required. By gently bending the float rod in the toilet, you can also reduce the amount per flush.

★ The toilet is not a wastebasket, and it should not be used to flush away tissue, cigarette butts or anything else that can be tossed into the trashcan.

★ The toilet tank can be filled with water that runs in the shower before it gets hot can be saved in a bucket and used for slushing the toilet.

Showers

★ A shower can flow at about 5 to 10 gallons a minute. Shorter showers save water, and energy as well. Use a kitchen timer to remind you when your three minute shower is over.

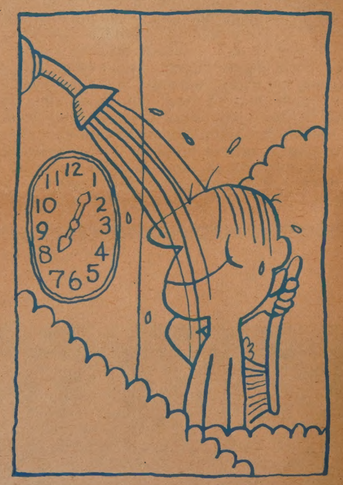
★ Flow restrictors inserted in the showerhead can reduce the flow to about three gallons a minute. These also will be available at EBMUD business offices.

★ Consider taking a "Navy Shower". Turn the water on only to wet yourself, shut it off to lather up, and turn it on to rinse the suds away. This is the most water-efficient way to bathe, short of taking a sponge bath.

★ If you are a tub person, don't fill it up all the way. A bathtub can hold 25-30 gallons — much more than a short shower with a low flow whowerhead.

★ Save the soapy water in the bathtub when you are through for irrigation or for flushing toilets.

★ Catch in a bucket the cold water that runs before it gets hot. This can be used to flush a toilet or water plants.



The Sink

★ Turn off the tap when you don't need it. When you are brushing your teeth, or washing your face, or shaving, keep the faucet off. If you need more water, put a stopper in the basin. Remember, the faucet can flow at 2-4 gallons a minute.

★ Turn down the valves below the sink to reduce the amount that can flow through the tap.

The Kitchen

★ The big use of water in the kitchen is washing dishes. Both automatic dishwashers and hand-washing can be water-efficient if the proper approach is used.

★ Automatic dishwashers will require 7 to 15 gallons a load, depending on the model and setting of the controls. Full loads of dishes mean less water used per dish. Be sure to save up your dirty dishes, whether it is a day's worth or a week's, so your dishwasher is fully loaded.

★ Set the controls of the dishwasher for the lowest practical setting for water. If it has a short cycle, use it.

★ When washing dishes by hand, don't let the water run, and use a plastic dishpan instead of the sink. Save the water that is used for washing and rinsing for watering plants.

★ Save the cold water that runs before it gets hot in a handy container kept near the sink.

★ Keep a jug of cold water in the refrigerator rather than letting the tap run to get it colder.

★ When peeling and washing vegatables, use a container of water rather than letting the tap run. Save the water for other uses.

★ Rather than using the garbage disposal, discard food remains in the garbage can, or you could start a compost pile.

Laundry

★ Like dishwashers, it is important to wash full loads only and to set the controls of the washing machine to the lowest practical setting for water.

★ Save the rinse water from the washer and use for the next load of clothes or for outdoor use.

★ A washing machine uses around 25 to 50 gallons of water for a load in a complete cycle. If there is a short cycle, use it, and if you have heavily soiled clothes let them soak first before putting them through the machine.

★ For single items or small loads, try hand washing them. Be sure to put a stopper in the sink and don't let the tap run.

★ When buying a new washing machine, or dishwasher, consider models with water-saving features, such as variable water settings and "suds-saver" arrangements.

Grey Water - Use every drop

"Grey water" is slightly used water — the water you have collected at the bottom of the tub after you have showered, or the rinse water from the washing machine. It is still useful, and we cannot afford to let it go down the drain.

The best use for soapy water is in stretching your irrigation water allotment. The University of California Agricultural Cooperative Extension advises that grey water, regardless of whether it has detergent or soap in it, can be used without too much worry on your plants. There are some things to remember, however:

★ Don't put the soapy rinse water directly on the plant. Pour it on the earth at the base of the plant, but not on the leaves. This means that you should not pour it on the lawn or on leafy ground covers.

★ If the rinse water contains borax soap, so not use it for irrigation.

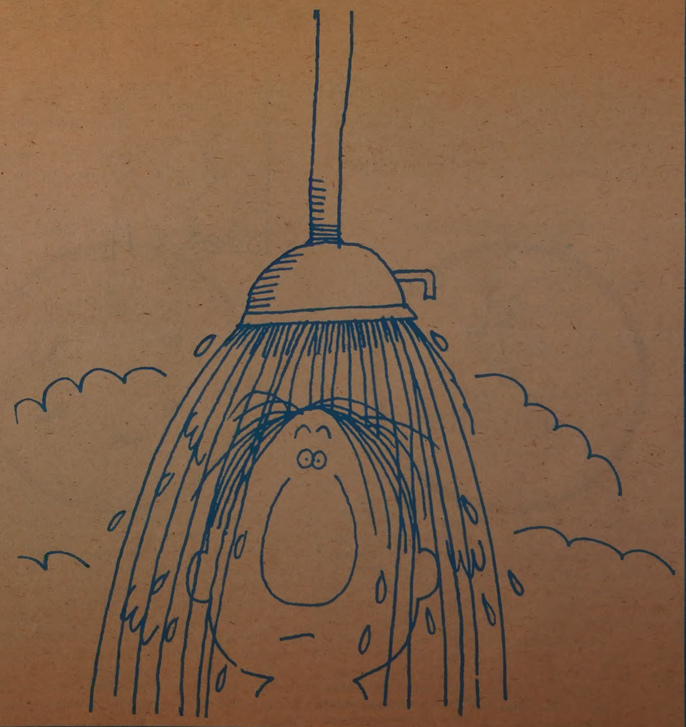
★ If chlorine bleach is in the water, you can still use it, but be sure you place it in different spots each time. Too much chlorine is not good; letting the water stand for a day will help.

The plumbing codes and health departments have a few requirements also:

★ Don't re-arrange your plumbing to lead the grey water outside. Use buckets or trash pails to carry it outdoors. A garden hose siphon will work handily to get the used water outside where you need it.

★ There must not be any way for grey water to contaminate the water system. To avoid this, don't pump used water into the sprinkler system, and don't hook up a pump to any part of the household plumbing.

★ You may not allow the grey water to flow onto your neighbor's property. Keep it on your own plants and there is no problem.



WATER LEAKS

IF YOU SEE WHAT APPEARS TO BE A WATER LEAK, OR WATER RUNNING DOWN THE GUTTER, IT COULD BE FROM A NUMBER OF CAUSES:

- ★ **a break in the EBMUD water main in the street**
- ★ **a leak at the water meter**
- ★ **a break in the customer's pipes**
- ★ **a leaky sewer line**
- ★ **runoff from over-sprinkling**
- ★ **natural groundwater**

We want your help in reporting problems to us. If you see an apparent water leak or other problem resulting in water being wasted, please call the nearest East Bay MUD office listed below:

Berkeley	**2190 Bancroft Way**	**841-0362**
Oakland	**250 - 17th Street**	**451-3440**
Richmond	**1030 Nevin Ave**	**232-5051**
Rodeo & Crockett—Call toll free		**Enterprise 1-0996**
San Leandro	**1595 Washington Ave**	**483-3540**
Walnut Creek	**1550 Broadway Plaza**	**934-6622**
		284-4466

OR
Nights and Weekends 835-3000

We'll do our best to respond quickly. Sometimes, through, because our crews are busy at another location, it may take a little longer — so please bear with us.

Of course, you are responsible for maintaining your own plumbing system from the water meter. Leaks within your system should be repaired promptly, to avoid water waste and exceeding your allotment.

How to read your water meter

In order to keep a close check on how much water you are using, you may well want to take regular readings of your water meter. It may look a little complicated, but using the following instructions most people find it pretty easy.

The first step is to locate your meter, which is generally enclosed in a concrete box somewhere near the front of your lot. Remove the concrete lid carefully, to avoid injury, and set it aside.

Inside, you will find a brass meter with a hinged cover; open the cover, being careful to inspect for insects — particularly spiders.

There are two basic kinds of meters, and you will be able to identify which type yours is from the accompanying illustrations.

Straight-Reading Meter

Figure 1

This type of meter reads exactly like the mileage indicator on your car. Disregard the needle in the illustration — it is used for testing purposes; including the zero painted on the face above, the illustration shown reads 81710, which is the total number of cubic feet of water recorded since the meter was installed. If you read the meter a month later and it shows 82960, you subtract the old reading from the new one (82960 minus 81710) and you find you have used 1250 cubic feet of water between the two readings. The chart below shows how to convert cubic feet into gallons.

Round-Reading Meter

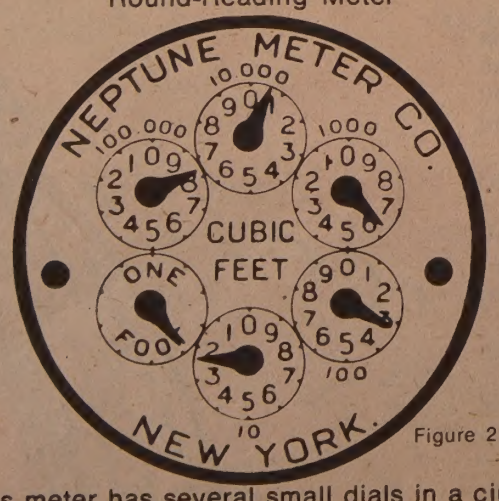


Figure 2

This meter has several small dials in a circle, each marked off in ten divisions. Each reads like a clock, except that the hand on every other dial turns counter-clockwise; to tell which way any one hand goes, just check to see which way the numbers are printed around the dial.

To read the illustration above, start with the 100,000 dial which reads 8 (when the hand is between numbers, use the lower number). The respective dials register 8, 0, 6, 3, and 2, or 80,632 cubic feet (the "one foot" dial is only to show the meter is working when water is running).

If you read the meter a month later and it shows 81882, you subtract the old reading from the new one (81882 minus 80632) and you find you have used 1250 cubic feet of water between the two readings. The chart below shows how to convert cubic feet into gallons.

Conversion Chart

1 cubic foot	7.48 gallons
10 cubic feet	74.80 gallons
100 cubic feet	748 gallons
1000 cubic feet	7480 gallons

In both examples above, 1250 cubic feet were used; multiply 1250 by 7.48 and you find that 8,350 gallons of water were used between readings.

EBMUD bills are based on billing units, which equal 100 cubic feet. To determine the number of billing units for which you are being charged, drop the last two digits from the cubic foot reading (in the examples above, the 5 and 0 are dropped, so the bill is based on 12 billing units).

IF YOU HAVE DIFFICULTY READING YOUR METER, CALL THE EBMUD OFFICE
(See the article on "WATER LEAKS").

Survival gardening

More water is used in home gardens and other kinds of landscaping than for any other purpose . . . in most years.

This year gardeners are going to have to adjust their gardens to the drought, even if it means loss of landscaping in some cases.

The Utility District's home allotment program is based on a "survival" average of 100 gallons for the garden per family per day. This is the amount of water that will run through an open garden hose — with the faucet wide open — in approximately ten minutes. That's not a great deal of water, and for people with large gardens, it probably means something less than survival.

Many gardens are based on plants that are totally foreign to the California-type climate, even in normal years. They may not survive, and you may want to forget your garden this year, keep all of your water allotment for indoor use, and give serious thought to replacing your existing garden — when the drought ends — with drought-tolerant California natives and other plants from "Mediterranean Zone" climates like ours. They will always use less water — on a year-round basis — and often require less work to maintain them than lawns and other ornamental plants less suited to our type of climate.

In any event, here are some suggestions for you, whether "gardening" means lawns, ornamentals, vegetables, or all of these:

Water when the grass begins to change color and show footprints instead of springing back. East of the Oakland-Berkeley hills, this probably means five minutes twice a week. West of the hills, probably less.

If your lawn has a heavy accumulation of "thatch" — dead grass between the grass leaves and the soil — or if the soil is heavily compacted, this won't be enough. Remove thatch by raking, or with equipment specially designed for thatch removal which can be rented or purchased from some garden supply and equipment rental stores. Spring is a good time to do it.

If the soil is compacted, some type of aerifier should be used to allow water to penetrate. Poking holes in the lawn will help.

Too much thatch or soil that is too compact can result in runoff onto the sidewalk or into the street. This will not be permitted, regardless of whether the full water allotment has been used or whether the lawn dies.

Do not fertilize. Turf experts say this will tend to increase the need for water.

Vegetables. We would encourage you **not** to plant a vegetable garden this year, because it is difficult to have a good one without adequate amounts of water.

However, if you want to use your garden water allotment on vegetables, here are some tips to make your water go further:

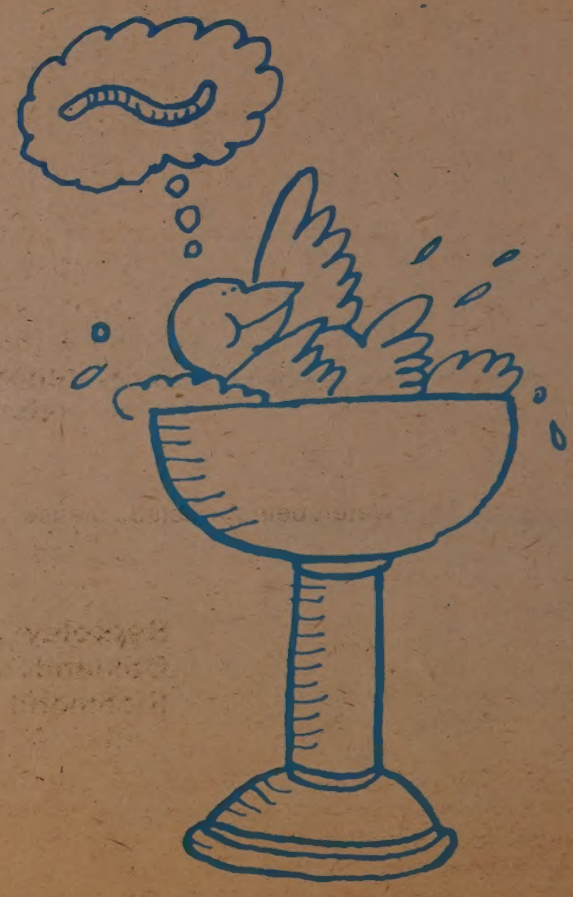
Before you plant, add soil amendments. A clay soil is subject to wasteful runoff when you water; a sandy soil loses too much water too quickly through evaporation. Compost, composted manure, leaf mold, rice hulls, and peat moss are some of the suitable soil amendments.

As your vegetables grow, add mulch to keep water in the soil. Many things will work — black plastic sheeting between rows of corn, for example; or many of the things suggested as soil amendments; or bark, sawdust and straw; or even old newspapers.

Ornamentals. Again, we hope you won't plant any new ones this year, particularly annuals. For trees, shrubs and perennials, here are some irrigation tips which may help them survive the summer:

The basic principle for efficient watering is to give plants only as much water as they need and only when they show signs of needing it. Look carefully at the leaves to tell when plants and lawns need water — do not follow a rigid schedule of watering. If the leaves begin to slightly curl under on the edges or lose a bit of their gloss, it is time to water. Water in the cool of the day, such as mornings and evenings, and at windless times, in order to reduce water loss from evaporation, spray, and runoff. For shrubs and trees, scoop out an earth basin at the base and fill it with water from a hand-held hose. This deep soaking should not be necessary very often.

Drip irrigation may be the most efficient way to water gardens which have many water-loving plants. By slowly putting small amounts of water right at the base of plants and by minimizing the loss from runoff, spray, and misplacement a drip system can cut the amount of water used by as much as 50 percent.



A permanent drip system starts with an automatic controller which regulates the frequency and duration of irrigation — usually for a few minutes every day or two. A backflow check valve prevents water from re-entering the plumbing system, a filter prevents clogging of the emitters, and a pressure regulator reduces the water pressure to the proper level for the drip emitters and hoses. The emitters, which range in capacity from about one to five gallons an hour, drip water at each plant, and some larger plants and trees may require more than one emitter.

These are only a few suggestions to help you conserve water in the garden. For specific advice on survival of particular plants, and for information about future conversion of your garden to one which is more drought tolerant, we recommend that you contact your nurseryman, landscape contractor, or other garden supply center. Additional information can also be obtained from the **Sunset Western Garden Book;** the Berkeley Ecology Center, 2179 Allston Way, Berkeley 94704; the California Native Plant Society, 2380 Ellsworth, Berkeley 94704; the Soil Conservation Service, Alameda County - Post Office Box 672, Livermore 94550 and Contra Costa County - 5552 Clayton Road, Concord 94521; Contra Costa Resource Conservation District, 5552 Clayton Road, Concord 94521; and the Alameda-Contra Costa Cooperative Extension Office, 224 West Winton Avenue, Room 162, Hayward 94544.